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Application No.: 10/714,065

Docket No.: SIW-069RCE

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A fuel cell system comprising:

a fuel cell for generating power by being supplied with a fuel gas and an oxidizing gas;
a fuel gas supply path for supplying a fuel gas to the fuel cell;
a fuel off-gas circulation path for returning a fuel off-gas discharged from the fuel cell to the fuel gas supply path;

an ejector, provided in the fuel gas supply path and driven by fluid flow energy, for supplying the fuel off-gas in the fuel off-gas circulation path flow to the fuel gas supply path;

a fuel pump, provided in the fuel off-gas circulation path or on the fuel gas supply path and downstream with respect to the ejector, and driven by a rotating machine, for pressurizing the fuel off-gas;

a discharge valve for discharging the fuel off-gas from the fuel off-gas circulation path;
and

a control device operatively connected to the fuel pump and to the discharge valve,
wherein the control device is configured to close the discharge valve and operate the fuel pump upon start up of the fuel cell.

2. (Currently Amended) A fuel cell system according to claim 1, further comprising a voltage measuring device, connected to the control device, for measuring voltage of cells constituting the fuel cell,

wherein the control device controls the discharge valve so as to be opened ~~and closed~~ depending on if the voltage of the cells measured by the voltage measuring device at start up of the fuel cell is lower than a predetermined value.

3. (Currently Amended) A fuel cell system according to claim 1, further comprising a state-of-load measuring device, connected to the control device, for measuring a state-of-load of the fuel pump,

wherein the control device controls the discharge valve so as to be opened ~~and closed~~ depending on if the state-of-load measured by the state-of-load measuring device at start up of the fuel cell is greater than a predetermined value.

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4. (Currently Amended) A fuel cell system according to claim 21, further comprising a state-of-load measuring device, connected to the control device, for measuring a state-of-load of the fuel pump,

wherein the control device controls the discharge valve so as to be opened ~~and closed depending on~~ if the state-of-load measured by the state-of-load measuring device is greater than a predetermined value when a predetermined time has passed since the fuel cell is started.

5. (Withdrawn) A method for operating a fuel cell system which comprises: a fuel cell for generating power by being supplied with a fuel gas and an oxidizing gas; a fuel gas supply path for supplying a fuel gas to the fuel cell; a fuel off-gas circulation path for returning a fuel off-gas discharged from the fuel cell to the fuel gas supply path; an ejector, provided in the fuel gas supply path and driven by fluid flow energy, for supplying the fuel off-gas in the fuel off-gas circulation path flow to the fuel gas supply path; a fuel pump, provided in the fuel off-gas circulation path or on the fuel gas supply path and downstream with respect to the ejector, and driven by a rotating machine, for pressurizing the fuel off-gas; a discharge valve for discharging the fuel off-gas from the fuel off-gas circulation path; and a control device operatively connected to the fuel pump and to the discharge valve, the method comprising the steps of:

closing the discharge valve upon starting of the fuel cell; and

operating the fuel pump when the discharge valve is in a closed state.

6. (Withdrawn) A method for operating a fuel cell system according to claim 5,

wherein the fuel cell system further comprises a voltage measuring device for measuring voltage of cells constituting the fuel cell, and

wherein the method further comprises the steps of:

opening the discharge valve when the voltage of the cells measured by the voltage measuring device is lower than or equal to a predetermined value when a predetermined time has passed since the fuel cell is started; and

closing the discharge valve when the voltage of the cells exceeds the predetermined value after the discharge valve is opened.

7. (Withdrawn) A method for operating a fuel cell system according to claim 5,

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wherein the fuel cell system further comprises a nitrogen concentration measuring device for measuring concentration of nitrogen contained in the fuel off-gas, and a voltage measuring device for measuring voltage of cells constituting the fuel cell, and

wherein the method further comprises the steps of:

opening the discharge valve when the concentration of nitrogen measured by the nitrogen concentration measuring device is greater than or equal to a predetermined value when a predetermined time has passed since the fuel cell is started; and

closing the discharge valve when the voltage of the cells exceeds a predetermined value after the discharge valve is opened.

8. (Withdrawn) A method for operating a fuel cell system according to claim 7, wherein the nitrogen concentration measuring device comprises a state-of-load measuring device for measuring a state-of-load of the fuel pump.

9. (Cancelled)

10. (New) A fuel cell system according to claim 1, further comprising a voltage measuring device, connected to the control device, for measuring voltage of cells constituting the fuel cell,

wherein the control device is configured to control the discharge valve so as to be opened if the voltage of the cells measured by the voltage measuring device is lower than a predetermined value when a predetermined time has passed since the fuel cell is started.